

## User's Manual



### IRL 20 IR Repeater

68-1036-01 **Rev. A**  
12 04

# Precautions

## Safety Instructions • English



This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.



This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

### Caution

**Read Instructions** • Read and understand all safety and operating instructions before using the equipment.

**Retain Instructions** • The safety instructions should be kept for future reference.

**Follow Warnings** • Follow all warnings and instructions marked on the equipment or in the user information.

**Avoid Attachments** • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

## Consignes de Sécurité • Français



Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).



Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.

### Attention

**Lire les instructions** • Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.

**Conservé les instructions** • Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.

**Respecter les avertissements** • Observer tous les avertissements et consignes marqués sur le matériel ou présentés dans la documentation utilisateur.

**Éviter les pièces de fixation** • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

## Sicherheitsanleitungen • Deutsch



Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.



Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.

### Achtung

**Lesen der Anleitungen** • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits- und Bedienungsanleitungen genau durchlesen und verstehen.

**Aufbewahren der Anleitungen** • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.

**Befolgen der Warnhinweise** • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.

**Keine Zusatzgeräte** • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

## Instrucciones de seguridad • Español



Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.



Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.

### Precaucion

**Leer las instrucciones** • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.

**Conservar las instrucciones** • Conservar las instrucciones de seguridad para futura consulta.

**Obedecer las advertencias** • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.

**Evitar el uso de accesorios** • No usar herramientas o accesorios que no sean específicamente recomendados por el fabricante, ya que podrían implicar riesgos.

### Warning

**Power sources** • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.

**Power disconnection** • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).

**Power cord protection** • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

**Servicing** • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

**Slots and openings** • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

**Lithium battery** • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

### Avertissement

**Alimentations** • Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité : n'essayez pas de le contourner ni de le désactiver.

**Déconnexion de l'alimentation** • Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.

**Protection du cordon d'alimentation** • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.

**Réparation-maintenance** • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à des opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.

**Fentes et orifices** • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.

**Lithium Batterie** • Il a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au reut les batteries usagées conformément aux instructions du fabricant.

### Vorsicht

**Stromquellen** • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdschluß, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.

**Stromunterbrechung** • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stromversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.

**Schutz des Netzkabels** • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf- oder unmittelbar dagegestellt werden können.

**Wartung** • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder andere Gefahren bestehen.

**Schlitze und Öffnungen** • Wenn das Gerät Schlitze oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.

**Litium-Batterie** • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

### Advertencia

**Alimentación eléctrica** • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puentearla ni eliminarla.

**Desconexión de alimentación eléctrica** • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.

**Protección del cables de alimentación** • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.

**Reparaciones/mantenimiento** • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario deba acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/ mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.

**Ranuras y aberturas** • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalentamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.

**Batería de litio** • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Desachar las baterías usadas siguiendo las instrucciones del fabricante.

# FCC Class A Notice

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Note: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to ensure compliance.

# Extron's Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

### USA, Canada, South America, and Central America:

Extron Electronics  
1001 East Ball Road  
Anaheim, CA 92805, USA

### Asia:

Extron Electronics, Asia  
135 Joo Seng Road, #04-01  
PM Industrial Bldg.  
Singapore 368363

### Europe, Africa, and the Middle East:

Extron Electronics, Europe  
Beeldschermweg 6C  
3821 AH Amersfoort  
The Netherlands

### Japan:

Extron Electronics, Japan  
Kyodo Building  
16 Ichibancho  
Chiyoda-ku, Tokyo 102-0082  
Japan

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions or non-Extron authorized modification to the product.

*If it has been determined that the product is defective, please call Extron and ask for an Applications Engineer at (714) 491-1500 (USA), 31.33.453.4040 (Europe), 65.6383.4400 (Asia), or 81.3.3511.7655 (Japan) to receive an RA# (Return Authorization number). This will begin the repair process as quickly as possible.*

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

## Quick Start Guide — IRL 20

### Step 1

Turn the equipment off and disconnect the equipment from the power source.

### Step 2

Cut a length (150' / 45 m or less) of Extron Comm-Link cable to go between the MediaLink Controller (MLC), MediaLink Switcher, System 5 IP Switcher, or AVT 100 and the IRL 20. See appendix A for cable part numbers.

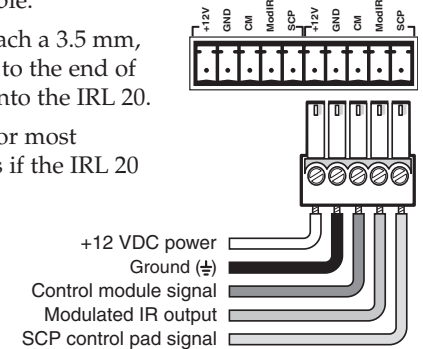
**NOTE** The maximum total distance between an Extron device (switcher, controller) and the IRL 20 is 150' (45.7 m).

### Step 3

For switchers or an AVT 100, attach a 3.5 mm, 5-pole captive screw connector to each end of the cable.

For MediaLink controllers, attach a 3.5 mm, 5-pole captive screw connector to the end of the cable that will be plugged into the IRL 20.

Only three wires are required for most applications, but use four wires if the IRL 20 will be daisy chained with MediaLink Control Modules. Refer to the device's manual and chapter 2 for details on ports and pin assignments.



**NOTE** Do not connect more than one IRL 20 or IR Link (either in parallel or in series) to an Extron device. Also, read the user's or installation manual for each product to determine the maximum quantity of control modules that can be used.

### Step 4

Plug the terminated cable to one of the IRL 20's rear panel communications connectors.

### Step 5

Plug the other end of the cable into the appropriate port of the switcher, controller, control module, or AVT. Refer to the device's manual for details on ports and pin assignments. Wire both ends of the cable identically (ground to ground, signal to signal, and so forth).

### Step 6

Attach a captive screw connector to another length of Comm-Link cable as in step 3, then plug it into the IRL 20's remaining

## Quick Start Guide — IRL 20, cont'd

communications connector. If desired, terminate the other end of the cable and plug it into a communications connector on an optional control module.

### Step 7

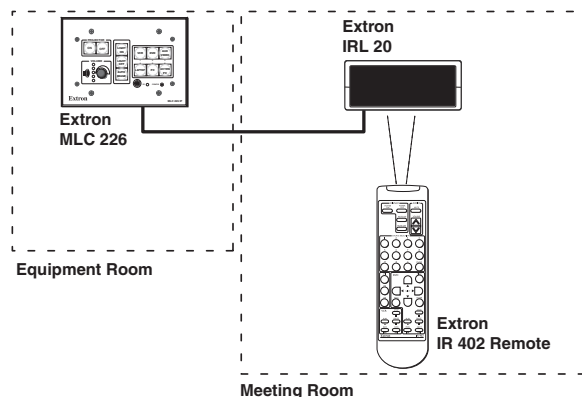
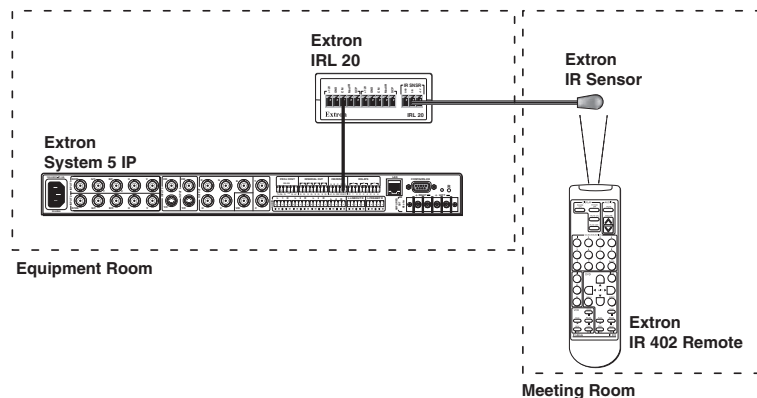
Verify correct wiring and cabling, and test the system: connect the devices to a power source, turn them on, aim an IR remote control at the IRL 20, and check for the appropriate response at the remotely controlled Extron device.

### Step 8

If needed, disconnect all the devices from the power source(s), and correct any cabling errors.

### Step 9

Restore power to the equipment.



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# 1

## **Chapter One**

### **Introduction**

About the IRL 20

Features

## Introduction

### About the IRL 20

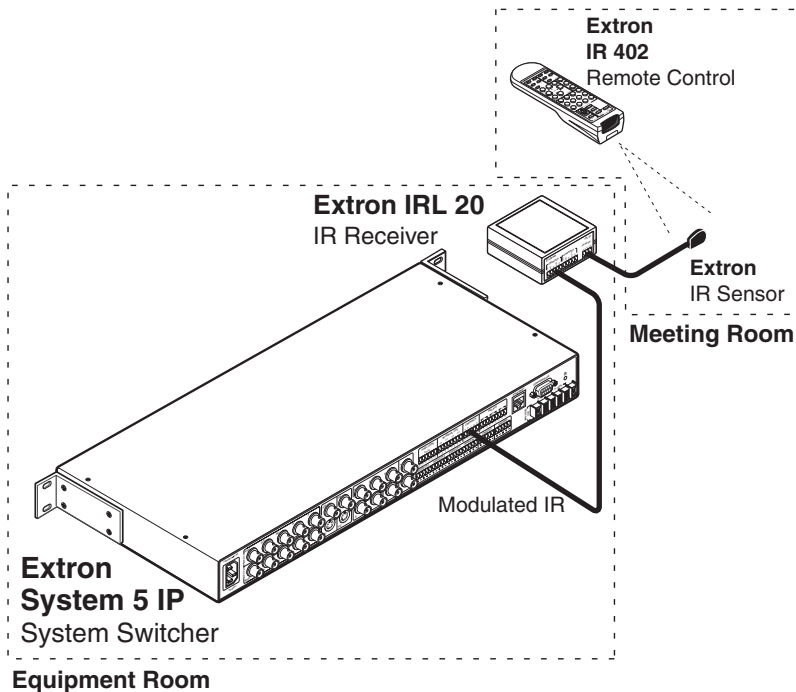
The Extron IRL 20 is a hardwired infrared (IR) signal receiver for use with Extron IR remote controls and an Extron MediaLink™ Controller (MLC), MediaLink Switcher, System 5 IP Switcher, or AVT 100. The IRL 20 receives a signal via its front panel from an Extron IR remote operating at 38 kHz. It can also receive IR input via an optional Extron IR Sensor, which is smaller and less visible than the IRL 20. It outputs the modulated IR signal via an IR Emitter or the IR Link or CM/IR/SCP port of a device mentioned above, allowing that device to be mounted out of sight in a rack or furniture.

### Features

**Compactness and flexibility** — The IRL 20's small enclosure can be secured to any surface without having to cut any holes in furniture or walls. This allows for a wide range of mounting locations.



**IRL 20**



# Chapter Two

## Installation and Operation

UL Requirements

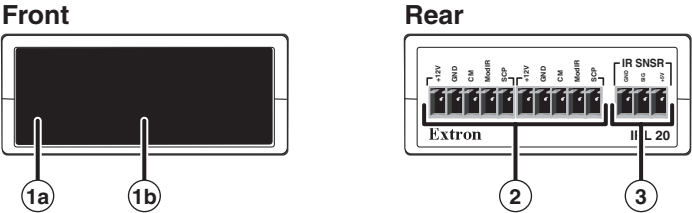
Front and Rear Panel Features

# Installation and Operation

## UL Requirements

- 1. This unit is not to be connected to a centralized DC power source or used beyond its rated voltage range.
- 2. The IRL 20 must be installed with accordance with the National Electrical Code and with local electrical codes.

## Front and Rear Panel Features



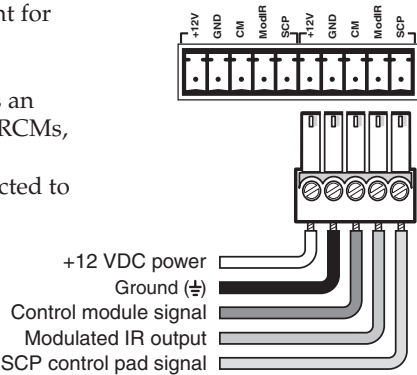
- ① **IR signal receivers (1b) and indicator LED (1a)** (behind the panel) — The sensors that receive incoming IR signals are behind the red, plastic, front panel lens near the middle; toward the left is a green LED that blinks when an IR signal is received by the IRL 20. The angles (+/- 40°) and maximum distance (up to 30') recommended for best reception of incoming signals are shown in the illustration at right.
- ② **Communications connector** — Use this 10-pole connector to connect the IRL 20 to other Extron devices. Both halves of the connector function the same way (either can be used as an input or an output), so they are interchangeable.

**NOTE** Connectors are included with the IRL 20, but the cable must be purchased separately. See the illustration on the next page for reference, and see appendix A for cable part numbers and conductor gauges.

Install a 3.5 mm, 5-pole captive screw connector on one end of an Extron Comm-Link cable, and plug it into the left or the right half of this connector. Wire both ends of the cable identically (ground pin to ground pin, modulated IR to modulated IR, etc.). Plug the other end of the cable into the appropriate connector on an Extron MediaLink Controller (MLC), MediaLink Switcher, System 5 IP Switcher, or AVT 100.

See the illustration at right for pin assignments:

Other accessories such as an Extron control module (IRCMs, ACMs, RCMs) or an SCP control pad can be connected to the other 5 poles of this captive screw connector.

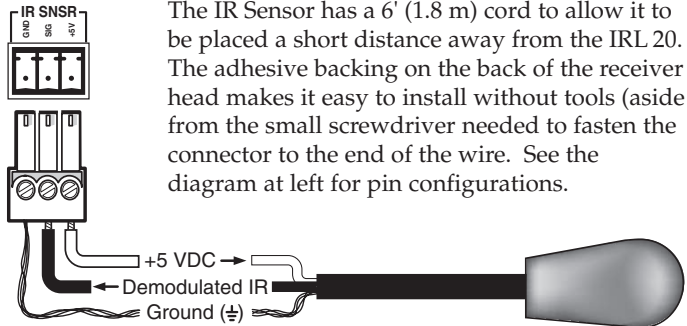


The Extron switchers and the AVT 100 devices provide 12 VDC on pin B and a ground on pin A, so there is no need for an additional power supply.

**NOTE** If the IRL 20 is used with an MLC 104 Series or MLC 226 Series controller, do not power the IRL 20 from the MLC: connect an external 12 VDC power supply (such as Extron part #70-055-01) to those pins.

**NOTE** Connect a maximum of one (1) IRL 20 to a device. Do not connect more than one IRL 20 or IR Link (either in parallel or in series) to a switcher, MediaLink Controller, or AVT.

- ③ **IR Sensor port** — If the installation requires an IR pickup device that is even less visible than the IRL 20, you can cable an Extron IR Sensor (part #70-223-01) to this port, hide the IRL 20 within furniture, and place the IR Sensor's receiver head in the line of sight of the Extron remote control.



**NOTE** The IR sensor has a 6' (1.8 m) cord, but the maximum cable length for the IR Sensor is 21' (6.4 m). Do not cut the IR sensor's cable or extend it beyond 21 feet.



### Connecting an IRL 20 to a MediaLink switcher or controller, an AVT 100, or another Extron product

The IRL 20 can be connected directly to a MediaLink switcher, System 5 IP switcher, or AVT tuner. Also, it can either be connected directly to an MLC or be part of a daisy chain of MediaLink Control Modules connected to an MLC.

1. If it hasn't already been done, cut a length (150' / 45 m or less) of Extron Comm-Link cable to go between the MediaLink Controller (MLC), MediaLink Switcher, System 5 IP Switcher, or AVT 100 and the IRL 20. See appendix A for cable part numbers.

**NOTE** The maximum total distance between an Extron device (switcher, controller) and the IRL 20 is 150' (45 m).

2. For switchers or an AVT, attach a 3.5 mm, 5-pole captive screw connector to each end of the cable. Only three wires (pins C,  $\frac{+}{-}$ , and + on the switcher/AVT end) are required.

For MediaLink controllers, attach a 3.5 mm, 5-pole captive screw connector to the end of the cable that will be plugged into the IRL 20, and connect wires on the other end of the cable to the MLC's IR/RCM or CM/IR/SCP direct insertion captive screw connector. Wire both ends of the cable identically (ground to ground, signal to signal, and so forth).

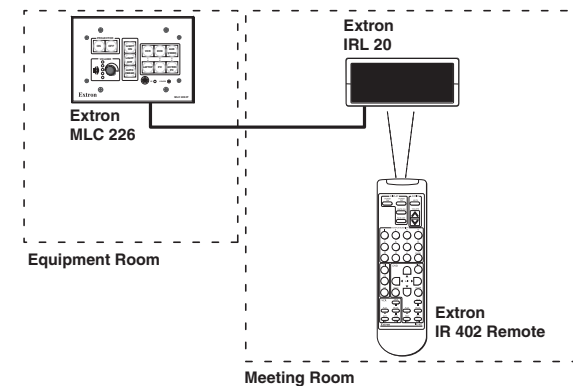
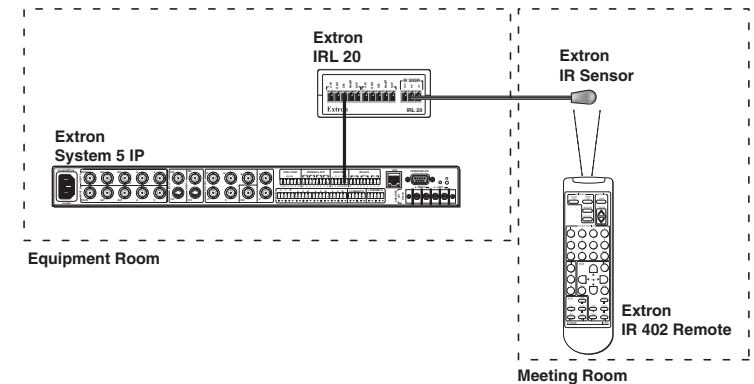
Only three wires are required, but use four wires if the IRL 20 will be daisy chained with MediaLink Control Modules. Refer to the device's manual for details on ports and pin assignments

**NOTE** Do not connect more than one IRL 20 or IR Link (either in parallel or in series) to an Extron device.

3. Plug the 5-pole connector into one of the IRL 20's communications connectors.
4. Plug the other end of the cable into the appropriate port of the switcher, controller, control module, or AVT. Refer to the device's manual for details on ports and pin assignments.

**NOTE** Do not connect more than one (1) IRL 20 (either in parallel or in series) to a switcher. Also, read the user's or installation manual for each product to determine the maximum quantity of control modules that can be used.

5. Plug one end of another cable into the IRL 20's remaining communications connector. Plug the other end of the cable into a communications connector on an optional control module.



**Typical applications for the IRL 20**

### Connecting an IRL 20 to a power supply and an IR Emitter

An external, stand-alone power supply is only necessary if the IRL 20 is not connected to an Extron device that is able to supply power to it.

1. Attach an external 12 VDC power supply the +12 VDC pin and the ground pin of a 3.5 mm captive screw connector, and plug it into one of the IRL 20's communications connectors as shown on the next page.

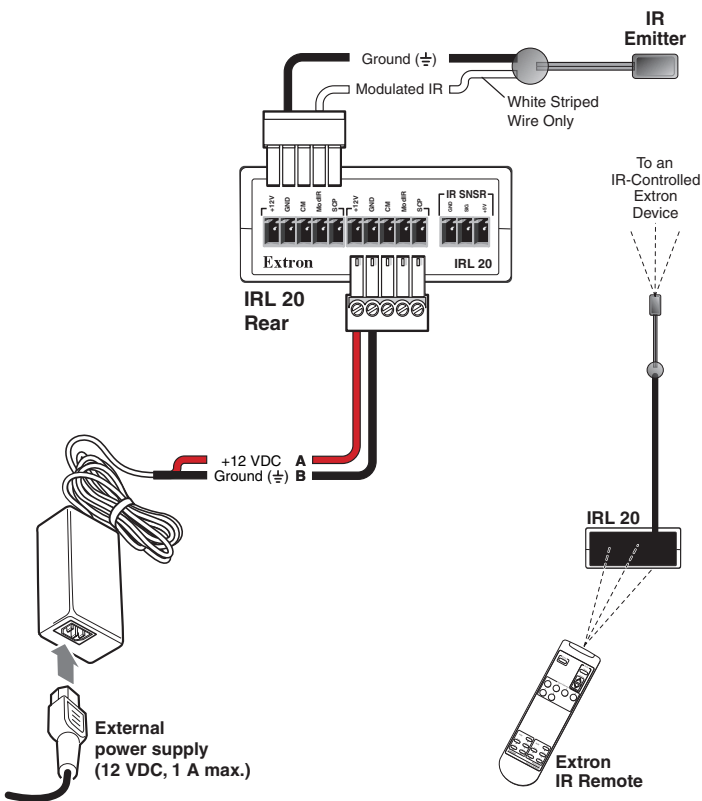
**NOTE** Connect a maximum of one IRL 20. Do not connect more than one IRL 20 (either in parallel or in series).



- 2. Attach the black wire of an Extron IR Emitter to pin B (ground) and the white striped wire to pin D (IR signal) of a 3.5 mm captive screw connector, and plug it into the IRL 20's remaining communications connector, as shown below. Two or three emitters can be wired to the same connector, if needed.

**NOTE** You can use one 5-pole connector to connect both the power input and the IR Emitter (IR output). It is not necessary to use two connectors.

- 3. Place the head of the IR Emitter near or in front of the IR pickup device of the IR-controllable Extron product.



Stand-alone IRL 20 with power supply and IR Emitter



IRL 20

# Appendix A

## Specifications, Part Numbers, and Accessories

- Specifications
- Included Parts
- Accessories
- Cables

Specifications, Part Numbers, and Accessories

Specifications

Control/remote — IR repeater

- IR controller module ..... Extron IR remote controls only
- IR output carrier frequency ..... 38 kHz

**NOTE** Use the IRL 20 with Extron products only.

General

- External power supply ..... 12 VDC, regulated; from an Extron MediaLink Controller, MediaLink Switcher, System 5 IP, AVT 100, or an external power supply
- Power input requirements ..... 12 VDC, 50 mA
- Temperature/humidity ..... Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing  
Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
- Rack mount ..... No
- Enclosure type ..... Plastic
- Enclosure dimensions ..... 1.0" H x 2.4" W x 2.3" D  
2.5 cm H x 6.1 cm W x 5.8 cm D
- Product weight ..... 0.2 lbs (0.1 kg)
- Shipping weight ..... 1 lbs (1 kg)
- Vibration ..... ISTA 1A in carton (International Safe Transit Association)
- Listings ..... UL, CUL
- Compliances ..... CE, FCC Class A, VCCI, AS/NZS, ICES
- MTBF ..... 30,000 hours
- Warranty ..... 3 years parts and labor

**NOTE** All nominal levels are at ±10%.

**NOTE** Specifications are subject to change without notice.

Included Parts

These items are included in each order for a control module:

Included parts	Part number to reorder
IRL 20	60-580-01
3.5 mm, 5-pole captive screw connectors	10-319-10
3.5 mm, 3-pole captive screw connector	10-319-13
Velcro (hook and loop fasteners)	
User’s manual	

Accessories

Accessories	Part number
12 VDC power supply	70-055-01
IR Sensor	70-223-01
IR Emitter kit	70-283-01

Cables

Plenum Comm-Link cable	Part number
50 feet/15.2 meters long	26-461-01
100 feet/30.5 meters long	26-461-02
200 feet/61.0 meters long	26-461-03

Conductor gauges in Extron Comm-Link cables	
red and black single strands (for power/ground)	18 AWG
white and violet shielded single strands (for signals)	22 AWG
drain wire	24 AWG

**Specifications, Part Numbers, Accessories, cont'd**